

REMARKS¹

In the outstanding Office Action, the Examiner rejected claims 1-26 under 35 U.S.C. § 103(a) as being unpatentable over Latta, et al., "Homomorphic Factorization of BRDF-based Lighting Computation," ACM – Transactions on Graphics, July, 2002, pages 509-516 ("Latta") in view of Kautz et al., "Interactive Rendering with Arbitrary BRDFs using Separable Approximations," pages 1-15.

By this amendment, Applicant has amended claims 1 and 14. Claims 1-26 remain pending in this application.

Applicant respectfully traverses the rejection of claims 1-26 under 35 U.S.C. § 103(a). A *prima facie* case of obviousness cannot be established for at least the reason that the references, whether taken alone or in combination, fail to disclose every element recited in the claims.

For example, Latta fails to teach or suggest an image processing apparatus or method including "calculating said reflectivity based on a BRDF model calculated by a quadratic-form matrix expression having the form of

$$\begin{bmatrix} L \\ V \\ N \end{bmatrix} [M] \begin{bmatrix} L \\ V \\ N \end{bmatrix}, "$$

¹ The Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicant declines to automatically subscribe to any statement of characterization in the Office Action.

as recited in claims 1 and 14 (emphasis added). The Examiner acknowledges that Latta fails to disclose this feature, stating, “Latta does not teach that the reflexivity matrix is a ‘quadratic-form’ matrix as claimed.” Office Action, page 3.

To attempt to cure the deficiencies of Latta, the Examiner cites to Kautz, stating, “Kautz teaches that the integral calculation in bidirectional reflectance distribution (BRDF) is approximately generated by the square/quadratic matrix in the computer.” *Id.* Kautz discloses

[g]iven a matrix M, the singular value decomposition (SVD) [1,21] of M is the factorization $M = USV^T$. . . [wherein]

$$M = \begin{pmatrix} f_p(x_1, y_1) & \cdots & f_p(x_1, y_K) \\ \vdots & \ddots & \vdots \\ f_p(x_K, y_1) & \cdots & f_p(x_K, y_K) \end{pmatrix}$$

Kautz, page 4. Kautz describes a matrix expression, but contrary to the Examiner's assertion, Kautz does not teach that the matrix expression M is in a quadratic form. The mere fact that the matrix M comprises four listed elements does not make it in a quadratic form (or “square” as noted by the Examiner) in any way. Moreover, matrix M does not “. . . hav[e] the form of

$$\begin{bmatrix} L \\ V \\ N \end{bmatrix} [M] \begin{bmatrix} L \\ V \\ N \end{bmatrix},$$

as recited in amended claims 1 and 14.

Because Latta and Kautz fail to disclose every element recited in amended claims 1 and 14, a *prima facie* case of obviousness has cannot be established.

Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claims 1 and 14 under 35 U.S.C. § 103(a).

Claims 2-13 and 15-26 respectively depend from claims 1 and 14, and thus require all of the respective features recited in claims 1 and 14. As discussed above, Latta and Kautz fail to disclose every feature recited in claims 1 and 14. Accordingly, that combination of references also fails to disclose every element required by dependent claims 2-13 and 15-26. Accordingly, a *prima facie* case of obviousness cannot be established with respect to claims 2-13 and 15-26. Applicant therefore respectfully requests that the Examiner withdraw the rejection of claims 2-13 and 15-26 under 35 U.S.C. § 103(a).


In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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